InfoBrief
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R&D Spending at Federally Funded R&D Centers Increases for Fourth Consecutive Year in FY 2017

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The nation's 42 federally funded research and development centers (FFRDCs) spent over $20 billion on R&D in FY 2017, an annual increase of more than 4% in current dollars (table 1). Most support for R&D came from the federal government (98.2%), reaching nearly $19.7 billion in FY 2017. This amount represented a 4.3% increase in federal R&D support to FFRDCs—the fourth year of growth after funding declines in FYs 2010–13. In constant 2009 dollars, total FFRDC expenditures on R&D rose 2.4% from FY 2016 to FY 2017 (figure 1). Since FY 2007, total R&D spending at FFRDCs has increased at an average annual rate of 2.2% in constant dollars. These and the other statistics in this report come from the FY 2017 FFRDC Research and Development Survey, conducted by the National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF).

Expenditures, by Type of R&D

FFRDCs are privately operated R&D organizations that are exclusively or substantially financed by the federal government. In FY 2017, basic research activities accounted for 20.5% of total FFRDC R&D expenditures, 3.2 percentage points lower than in FYs 2013 and 2014 (table 2). The remaining R&D expenditures were divided evenly between applied research (39.6%) and experimental development (39.9%). Overall, total basic research expenditures at FFRDCs declined by $75 million in current dollars from FY 2013 to FY 2017. Applied research expenditures increased by $1.1 billion and experimental development increased by $1.3 billion during the same period.

TABLE 1. R&D expenditures at federally funded research and development centers, by source of funds: FYs 2010–17

(Thousands of current dollars)

Fiscal year	All R&D expenditures	Federal government	State and local government	Business	Nonprofit organizations	All other sources
2010	18,880,609	18,453,552	52,871	168,561	23,665	181,960
2011	18,671,245	18,276,088	26,744	190,111	38,878	139,424
2012	18,280,943	17,875,012	39,428	184,434	45,926	136,143
2013	17,667,184	17,284,513	50,449	186,911	39,390	105,921
2014	17,718,556	17,331,396	28,337	220,735	37,182	100,906
2015	18,458,257	18,097,189	18,427	208,780	27,984	105,877
2016	19,219,702	18,855,593	21,556	192,239	40,195	110,119
2017	20,038,307	19,667,804	29,029	192,107	46,526	102,841

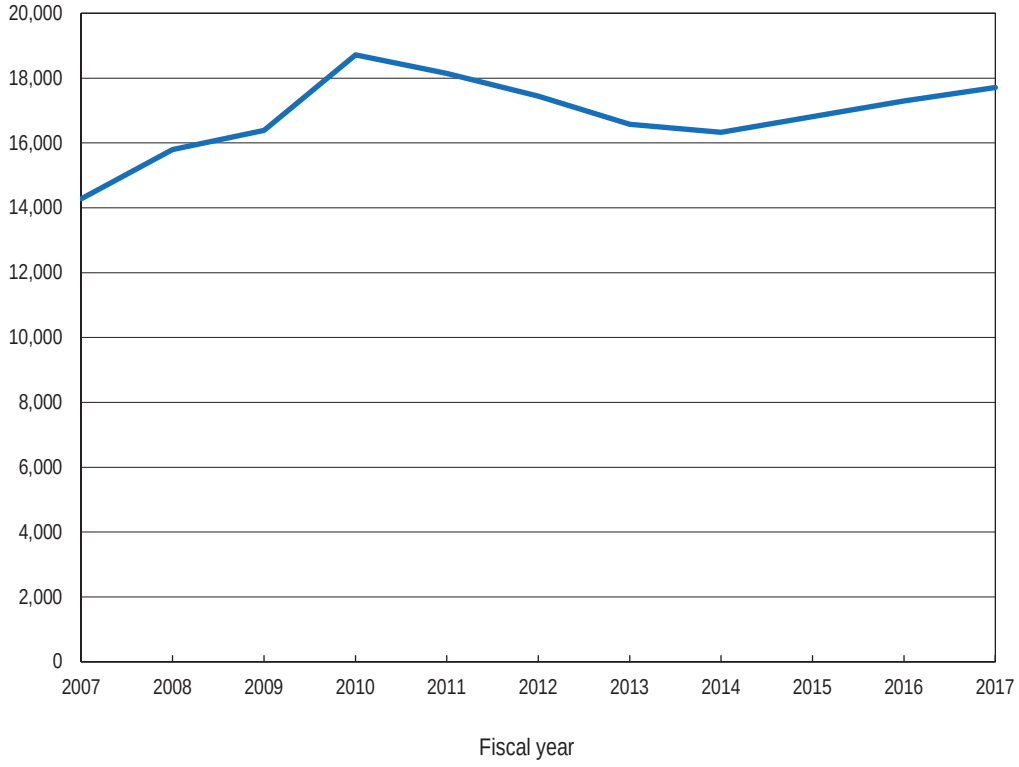
SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

R&D Expenditure Trends at Specific FFRDCs

The majority of FFRDCs (24 centers) increased R&D spending in FY 2017, with 16 reporting an increase greater than 4%. Six FFRDCs reported more than $1 billion each (and a combined $10.9 billion) in R&D expenditures for FY 2017—the National Aeronautics and Space Administration–sponsored Jet Propulsion Laboratory, four Department of Energy–sponsored National Laboratories specializing in energy

FIGURE 1. Total R&D expenditures at federally funded research and development centers: FYs 2007–17

(Constant 2009 $millions)



SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

and the environment, national security, and nuclear science: Sandia, Oak Ridge, Los Alamos, and Lawrence Livermore, and the Department of Defense–sponsored National Security Engineering Center (table 3). The Jet Propulsion Laboratory reported the largest dollar and percentage increase in R&D of any center, increasing by over $472 million, or 25.5%, from FY 2016. Seventeen FFRDCs reported lower expenditures in FY 2017, though six of those declined by less than 1.5%. Of the 40 FFRDCs listed continuously since 2014, 32 reported greater expenditures in FY 2017 compared to FY 2014.

TABLE 2. Total and federally financed R&D expenditures at federally funded research and development centers, by type of R&D: FYs 2013–17

(Millions of current dollars)

Fiscal year	All R&D expenditures	Basic research		Applied research		Experimental development	
		Amount	Percent	Amount	Percent	Amount	Percent
2013	17,667	4,186	23.7	6,818	38.6	6,663	37.7
2014	17,719	4,195	23.7	6,839	38.6	6,684	37.7
2015	18,458	4,094	22.2	7,292	39.5	7,072	38.3
2016	19,220	4,224	22.0	7,527	39.2	7,468	38.9
2017	20,038	4,111	20.5	7,931	39.6	7,996	39.9

NOTE: Because of rounding, detail may not add to total.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

Data Sources, Limitations, and Availability

The statistics on FFRDC R&D expenditures presented in this report come from the FY 2017 FFRDC Research and Development Survey. This annual survey is completed by FFRDC administrators and collects data from FFRDCs on R&D expenditures by source of funds (federal, state and local, business, nonprofit organizations, or other), type of R&D (basic research, applied research, or

TABLE 3. R&D expenditures at federally funded research and development centers, by FFRDC: FYs 2014–17
(Thousands of current dollars)

FFRDC	2014	2015	2016	2017	% change 2016–17
All FFRDCs	17,718,556	18,458,257	19,219,702	20,038,307	4.3
University-administered FFRDCs	5,279,306	5,483,466	5,669,908	6,155,252	8.6
Ames Laboratory	41,824	45,845	46,886	53,527	14.2
Argonne National Laboratory	719,459	719,521	733,377	723,824	-1.3
Fermi National Accelerator Laboratory	334,522	319,700	323,507	320,516	-0.9
Jet Propulsion Laboratory	1,664,539	1,749,689	1,852,369	2,324,826	25.5
Lawrence Berkeley National Laboratory	762,601	792,457	797,831	813,267	1.9
Lincoln Laboratory	830,076	914,071	949,138	969,090	2.1
National Center for Atmospheric Research	162,259	166,385	177,422	171,551	-3.3
National Optical Astronomy Observatory	25,161	23,660	24,917	25,906	4.0
National Radio Astronomy Observatory	85,327	89,689	90,411	91,720	1.4
National Solar Observatory	10,039	11,752	12,783	11,841	-7.4
Princeton Plasma Physics Laboratory	97,768	81,348	82,246	81,444	-1.0
SLAC National Accelerator Laboratory	316,646	310,167	313,031	327,453	4.6
Software Engineering Institute	123,217	131,146	145,981	132,967	-8.9
Thomas Jefferson National Accelerator Facility	105,868	128,036	120,009	107,320	-10.6
Nonprofit-administered FFRDCs	5,945,266	6,121,483	6,128,058	6,413,612	4.7
Aerospace Federally Funded Research and Development Center	838,708	888,119	909,868	942,704	3.6
Arroyo Center	33,391	40,594	44,616	42,723	-4.2
Brookhaven National Laboratory	573,364	587,194	579,087	556,875	-3.8
Center for Advanced Aviation System Development	149,054	155,696	156,644	168,169	7.4
Center for Communications and Computing	63,199	56,478	61,625	66,692	8.2
Center for Enterprise Modernization	158,069	145,442	146,436	154,933	5.8
Center for Naval Analyses	80,283	80,358	84,232	90,401	7.3
Center for Nuclear Waste Regulatory Analyses	12,314	12,636	8,600	6,312	-26.6
CMS Alliance to Modernize Healthcare	70,458	168,142	141,860	169,013	19.1
Homeland Security Operational Analysis Center	na	na	na	8,622	na
Homeland Security Studies and Analysis Institute	20,866	16,965	22,038	na	na
Homeland Security Systems Engineering and Development Institute	94,353	77,176	101,628	104,414	2.7
Judiciary Engineering and Modernization Center	2,299	4,318	9,289	8,030	-13.6
National Biodefense Analysis and Countermeasures Center	30,310	30,716	32,902	34,991	6.3
National Cybersecurity Center of Excellence	na	7,843	13,076	13,436	2.8
National Defense Research Institute	62,073	56,736	62,848	69,013	9.8
National Renewable Energy Laboratory	359,998	378,436	362,087	357,916	-1.2
National Security Engineering Center	885,382	919,441	966,542	1,012,155	4.7
Oak Ridge National Laboratory	1,293,722	1,333,332	1,283,729	1,403,204	9.3
Pacific Northwest National Laboratory	1,021,912	951,099	914,747	983,962	7.6
Project Air Force	39,351	44,393	49,165	48,521	-1.3
Science and Technology Policy Institute	10,949	8,724	7,459	8,401	12.6
Systems and Analyses Center	145,211	157,645	169,580	163,125	-3.8
Industry-administered FFRDCs	6,493,984	6,853,308	7,421,736	7,469,443	0.6
Frederick National Laboratory for Cancer Research	448,500	495,300	642,165	704,223	9.7
Idaho National Laboratory	479,801	476,376	521,618	482,840	-7.4
Lawrence Livermore National Laboratory	1,170,571	1,273,066	1,363,525	1,290,134	-5.4
Los Alamos National Laboratory	1,767,000	1,865,000	1,987,000	1,972,769	-0.7
Sandia National Laboratories	2,507,099	2,621,891	2,781,547	2,878,000	3.5
Savannah River National Laboratory	121,013	121,675	125,881	141,477	12.4

na = not applicable.

FFRDC = federally funded research and development center.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, FFRDC Research and Development Survey.

experimental development), and type of cost (salaries, software, equipment, subcontracts, or indirect costs). This survey has been a census of the full population of FFRDCs since FY 2001. For a list of criteria used to define the set of FFRDCs, see the general guidelines of the Master Government List of FFRDCs at https://www.nsf.gov/statistics/ffrdclist/#guide&gennotes. For more information on the survey methodology see the technical notes in *FFRDC Research and Development Expenditures: Fiscal Year 2017.*

The full set of data tables from this survey are available at https://ncsesdata.nsf.gov/ffrdcrd/2017/.

Note

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